

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LUIGI ROMANO and FULVIO TONDELLI

Appeal No. 98-0296
Application 08/431,312¹

ON BRIEF

Before HAIRSTON, FLEMING and RUGGIERO, **Administrative Patent Judges.**

FLEMING, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on appeal from the rejection of claims 21 and 23-28, all of the claims pending in the present application. Claims 1-20 have been withdrawn as directed to non-elected inventions² and claim 22 has been canceled.

¹ Application for patent filed April 28, 1995.

² Non-elected without traverse in papers 3 and 4.

The invention relates to plastic packages for electronic semiconductor devices (specification, page 1, lines 8-14). A leadframe (figure 9, number 1) supports a semiconductor element (figure 9, number 2) with an integrated circuit formed thereon. A plastic package is formed around the leadframe and semiconductor by injection molding of a resin (specification, page 2, line 19 through page 3, line 10). The shape of the plastic package includes top and bottom surfaces which are both concave, and the plastic package has a maximum thickness at the edges and a minimum thickness in the central region (specification, page 15, lines 7-14). The difference between the maximum and minimum thicknesses of the package is set to compensate for expected deformation (specification, page 15, line 10 through page 16, line 15).

Independent claim 21 is reproduced as follows:

21. A plastic package for an integrated electronic semiconductor device, comprising:

a metal leadframe on which a semiconductor element is placed, wherein an integrated electronic circuit has been formed on said semiconductor element and is electrically connected to said metal leadframe; and

a plastic body which encloses said semiconductor element and said leadframe so as to leave outside, for electrical connection, ends of a plurality of terminal leads formed on

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said metal leadframe;

wherein said plastic body has physical characteristics of a plastic body formed by a molding process, has a maximum thickness near the edges and has a minimum thickness in the central portion, wherein the difference between said maximum and minimum thickness is twice a maximum expected deformation of the package during the molding step.

The Examiner relies on the following references:

Kitamura et al (Kitamura)	4-360561	Dec. 14, 1992
Ina	4-150059	May 22, 1992

Claims 21, 23 and 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kitamura.

Claims 21 and 24-28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ina.³

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Brief⁴, Response To New

³The rejection of claims 21, 23 and 24 under 35 U.S.C. § 102(b) or 35 U.S.C. § 103 over Kitamura, and the rejection of claims 21 and 24-28 under 35 U.S.C. § 102(b) or 35 U.S.C. § 103 over Ina, as made in the final Office action (paper no. 8) were withdrawn by the Examiner in the Examiner's Answer and are not before us for consideration.

⁴The Brief was received January 24, 1997, and the Examiner's Answer was mailed April 2, 1997. Appellants' Response To New Grounds of Rejection with their Reply Brief was received July 17, 1997, and the Examiner's Supplemental Answer was mailed December 19, 2000. Appellants' Amendment received October 11, 2000 was entered with the substitute appendix of claims. By letter mailed August 24, 2000 the

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Grounds of Rejection, Reply Brief, Examiner's Answer, and Supplemental Examiner's Answer for the respective details thereof.

OPINION

We will not sustain the rejections of claims 21, 23 and 24 under 35 U.S.C. § 103 as obvious over Kitamura.

The Examiner has failed to set forth a ***prima facie*** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. *In re Sernaker*, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d

Examiner noted that the Reply Brief filed July 17, 1997 was entered and considered.

1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), *citing In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). The Federal Circuit reasons in *Para-Ordnance Mfg. v. SGS Importers Int'l Inc.*, 73 F.3d 1085, 1088-89, 37 USPQ2d 1237, 1239-40 (Fed. Cir. 1995), that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem and who had before him in his workshop the prior art, would have reasonably expected to use the solution that is claimed by Appellants. However, "[o]bviousness may not be established using hindsight or in view of the teachings or suggestions of the invention." *Para-Ordnance Mfg. v. SGS Importers Int'l*, 73 F.3d at 1087, 37 USPQ2d at 1239, *citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.* 721 F.2d 1551, 1553, 220 USPQ 311, 312-13. In addition, our reviewing court requires the PTO to make specific findings on a suggestion to combine prior art references. *In re Dembiczak*, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999).

On pages 7-14 of the brief, Appellants generally argue that Kitamura does not teach or suggest each feature recited

in the claims. In particular, Appellants argue that Kitamura does not show or suggest the claimed step of "wherein the difference between said maximum and minimum thickness is twice a maximum expected deformation of the package" (see claim 21, lines 14-15). Appellants also assert that this limitation is not a product-by-process limitation, but a physical limitation on the structure of the claimed device⁵, and defines the difference between the two thicknesses. In addition, Appellants assert that deformation is a physical measurable characteristic of the device and expected deformation is a predictive physical quantity.

Appellants further argue that claim 21 is directed to a physical structure for a plastic package before the curing process, not to a final, cured package, and thus the process which the Examiner contends renders the claim a product-by-process claim has not yet been performed.

In addition, Appellants assert⁶ that the Examiner has not

⁵Brief, page 8.

⁶ Response To New Grounds Of Rejection, page 2.

presented any motive or incentive for modifying the teachings of Kitamura to include this limitation.

In the answer⁷, the Examiner admits "Kitamura fail to explicitly show the thickness being twice a maximum expected deformation of the package during the molding step". The Examiner contends however that Kitamura discloses this difference "as much as Applicant does" and that one skilled in the art would recognize that the molding process may be formed to provide the claimed difference in thicknesses. Finally, the Examiner asserts that this claim language is product-by-process language and therefore is given little weight.

As pointed out by our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." *In re Hiniker Co.*, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998).

Turning first to Appellants' claim 21, we note that the claim recites in the final subparagraph, "wherein said plastic body . . . has a maximum thickness near the edges and has a minimum thickness in the central portion, wherein **the**

⁷ Page 4.

difference between the maximum and the minimum thickness is twice a maximum expected deformation of the package during the molding step" (emphasis added). Firstly, we find that this claim limitation is not a "product-by-process" step as asserted by the Examiner. This step defines physical form aspects of structure of the plastic package by limiting the difference between the maximum and minimum thicknesses to twice the maximum expected deformation.

Furthermore, we find the Examiner's contention that Kitamura discloses the claimed difference "as much as Applicant does" to be without factual basis. This limitation is supported by Appellants' specification, pages 15 and 16, and figure 7. This limitation was also present in originally filed claim 22. Kitamura makes no disclosure of this limitation.

Finally, the Examiner's finding that one skilled in the art would recognize that the molding process may be formed to provide the claimed difference in thicknesses, is not a viable basis to find the plastic body so formed to be obvious over Kitamura.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d at 1266 n.14, 23 USPQ2d at 1783-84 n.14 (Fed. Cir. 1992), citing *In re Gordon*, 733 F.2d at 902, 221 USPQ at 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." *Para-Ordnance*, 73 F.3d at 1087, 37 USPQ2d at 1239, citing *W. L. Gore & Assocs.*, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13. In addition, our reviewing court requires the PTO to make specific findings on a suggestion to combine prior art references. *In re Dembiczak*, 175 F.3d at 1000-01, 50 USPQ2d at 1617-19 (Fed. Cir. 1999).

We are not inclined to dispense with proof by evidence when the proposition at issue is not supported by a teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration. Our reviewing court requires this evidence in order to establish a *prima facie* case. *In re*

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Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984); *In re Knapp-Monarch Co.*, 296 F.2d 230, 232, 132 USPQ 6, 8 (CCPA 1961); *In re Cofer*, 354 F.2d 664, 668, 148 USPQ 268, 271-72 (CCPA 1966). Furthermore, our reviewing court states in *In re Piasecki*, 745 F.2d at 1472, 223 USPQ at 788 (Fed. Cir. 1984) the following:

The Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), focused on the procedural and evidentiary processes in reaching a conclusion under Section 103. As adapted to ex parte procedure, *Graham* is interpreted as continuing to place the "burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under section 102 and 103". *Citing In re Warner*, 379 F.2d 1011, 1020, 154 USPQ 173, 177 (CCPA 1967).

As claims 23 and 24 depend from claim 21, we will not sustain the rejections of claims 21, 23 and 24 under 35 U.S.C. § 103 as being unpatentable over Kitamura.

We will not sustain the rejections of claims 21, 24, 25 27 or 28 under 35 U.S.C. § 103 as being unpatentable over Ina. Claims 21 and 27 recite, "wherein said plastic body . . . has a maximum thickness near the edges and has a minimum thickness in the central portion, wherein **the difference between the maximum and the minimum thickness is twice a maximum expected**

deformation of the package during the molding step" (emphasis added). Claims 24, 25 depend on claim 21 and claim 28 depends upon claim 27.

The Examiner admits that Ina does not disclose this claim limitation, and both Appellants and the Examiner make substantially the same arguments in regard to Ina as presented above for Kitamura. Therefore, we again find that this claim limitation is not a "product-by-process" step as asserted by the Examiner but defines physical form aspects of structure of the plastic package by limiting the difference between the maximum and minimum thicknesses to twice the maximum expected deformation.

We also find the Examiner's contention that Ina discloses the claimed difference "as much as Applicant does" to be without factual basis. This limitation is supported by Appellants' specification, pages 15 and 16, and figure 7 and was present in the originally filed claim 22. Ina does not disclose this limitation.

Finally, the Examiner's finding that one skilled in the art would recognize that the molding process may be formed to

provide the claimed difference in thicknesses, is not a viable basis to find the plastic body so formed to be obvious over Ina.

We therefore do not sustain the rejections of claims 21, 24, 25, 27 or 28 under 35 U.S.C. § 103 as being unpatentable over Ina.

We will, however, sustain the Examiner's rejection of claim 26 under 35 U.S.C. § 103 as obvious over Ina. Figure 2 of Ina depicts a plastic body (3) enclosing a semiconductor (2) and a leadframe (4) so as to leave the terminal leads outside the plastic body. The plastic body clearly has a top surface with a concave shape, and a bottom surface which is substantially flat, such that the plastic body has a maximum thickness near the edges and a minimum thickness in a central portion of the body.

Appellants' sole argument⁸ in regard to this rejection of this claim is that Ina contains no description of a difference between a maximum and minimum thickness being equal to twice an expected deformation. We find that claim 26 does not

⁸Brief, pages 10 and 11, sections 2 and 3

recite this argued limitation.

We note that Appellants have not argued that Ina has failed to meet any of the other limitations of this claim. Appellants have chosen not to argue any other specific limitations of the claims as a basis for patentability. We are not required to raise and/or consider such issues. As stated by our reviewing court in *In re Baxter Travenol Labs.*, 952 F.2d 388, 391, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991), "[i]t is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for nonobvious distinctions over the prior art." 37 CFR 1.192(a) as amended at 58 CFR 545 Oct. 22, 1993, which was controlling at the time of Appellants' filing the brief, states as follows:

The brief . . . must set forth the authorities and arguments on which the appellant will rely to maintain the appeal. Any arguments or authorities not included in the brief may be refused consideration by the Board of Patent Appeals and Interferences, unless good cause is shown.

Thus, 37 CFR §1.192 provides that just as the Court is not

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under any burden to raise and/or consider such issues this Board is not under any greater burden.

We have not sustained the rejection of claims 21, 23-25, 27 and 28 under 35 U.S.C. § 103.

We have sustained the rejection of claim 26 under 35 U.S.C. § 103.

Accordingly, the Examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR

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§ 1.136(a).

AFFIRMED-IN-PART

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Administrative Patent Judge)	
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MICHAEL R. FLEMING)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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